

LAPSED 5.53

(11) AU-A 1-57,288/80



(12) PATENT SPECIFICATION

ABSTRACT

(19) AU

(21)	57,288/80	(22)	18.5.79	(23)	8.4.80	(24)	18.5.79
(43)	20.11.80						
(51) ³	C09J 5/06 A47G 27/04						
(54)	Carpet joining tape						
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(57)	Claim						

1. An improved carpet joining tape including an electrical conducting foil extending along said tape and adapted, in use, to be heated by an electric current to melt adhesive on said tape, said foil comprising two or more electrically separated strips extending along said tape, whereby, in use, said strips may be connected in series by bridging members between said strips, thus substantially reducing the amount of electrical current necessary to obtain the desired heating effect.

BAD ORIGINAL

This invention relates to an improved tape for joining carpet and in particular to an improved carpet joining tape in the form of a heat-bond tape.

Heat-bond tape generally consists of a paper backing member or carrier in the form of a continuous strip onto which is sewn a welt of Rayon (Registered Trade Mark) or like thread to provide transverse strength. A layer of adhesive is arranged over the thread and in use the tape is heated to melt the adhesive and thus adhere the backing member and thread to the carpet to be joined. Two different methods are used to heat the adhesive and the tape differs in each case. According to a first method an iron is used to apply heat to the tape and thus melt the glue, but this method is relatively time consuming. According to a second method the tape is manufactured with a thin metal foil extending along the tape and sewn thereto between the adhesive and the paper backing member and, in order to melt the adhesive, an electric current is passed along the tape via the foil. The present invention is concerned with a tape for facilitating use of the latter method.

A problem arises in using tapes having an electrical conducting foil. In order to provide a current density in the foil sufficient to melt the adhesive a current of over 100 amps is required and this necessitates use of a relatively large current supply source. Furthermore, in order to provide the necessary control, the current source needs to be adjustable so as to allow for variations in tape length and also to provide for a two stage heating process whereby the glue is firstly heated to a stage where it becomes tacky to enable initial application to the back of carpet to be joined and is secondly heated to a stage of full melt whereby the complete gluing process can occur.

Conventional apparatus for providing the heavy current supply is bulky and thus inconvenient in use. In the past a magnetic amplifier has been used to provide the heavy current from a normal domestic mains 230v supply. More

In order that the invention may be more readily understood a particular embodiment thereof will now be described with reference to the accompanying drawings wherein:

- 5 Fig. 1 is a sectional end view of a carpet joining tape according to the invention,
 Fig. 2 is a plan view of a length of tape according to Fig. 1 and
 Fig. 3 is a circuit diagram of a current supply
10 apparatus suitable for supplying current to the foil according to Figs. 1 and 2.

 Referring now to Fig. 1 there is shown a carpet joining tape comprising a backing member 10 formed from paper or like material and forming a carrier for supporting the other components of the tape. An electrical
15 conducting foil 11 is arranged on the backing member 10 and comprises two parallel strips separated by a gap 12 and extending lengthwise along the tape. The conducting foil 11 may be held on to the backing member 10 in one
20 of two ways and according to the present embodiment is held thereto by an adhesive coating 13 which is applied over the foil 11 with a thread arrangement 14 being arranged therebetween.

 The thread arrangement 14 comprises a weft of Rayon
25 (Registered Trade Mark) or like thread which provides transverse strength to the tape to assist in joining two

to the embodiment is about 1/8th of an inch.

Fig. 3 shows a circuit diagram for current supply apparatus to supply heating current to the tape shown in Figs. 1 and 2. The circuit diagram will not be explained in detail as it should be self-explanatory to persons skilled in the art. Briefly the current supply apparatus comprises a transformer T1 having a controlled primary in order to provide a variable current supply at the output thereof. The primary current is controlled using a phase shift principle involving capacitors C1, C2 and C3 as well as triacs TC1 and TC2 and TC3. In use the active and neutral of a domestic mains supply are connected to the respective active and neutral terminals shown in the Fig. and provide a 230v 6 amp supply to the apparatus. Thermal protection is provided for the transformer by a circuit breaker CB1 which provides an open circuit in the case of a continuous current of 10 amps for a duration of about 10 minutes. The circuitry is arranged so as to prevent an output current from T1 of maximum level when the apparatus is switched on and this is achieved by relay RL1 which requires control potentiometer VRI to be set to zero before current can be supplied to the primary of T1 via transformer T2. By increasing the control potentiometer VRI a phase shift is caused by the capacitor C1, C2 and C3 and associated circuitry which causes firing of the triacs TC1 - TC2 and TC3. Firing of the triacs energizes T1 which causes an output current to the tape. The output current is measured by the secondary current of transformer T2 energizing control meter M. The components of the circuit not specifically mentioned herein should be self-explanatory.

It should be evident from the description hereinabove that the present invention provides considerable advantages in carpet joining tape. Clearly the invention is not limited to the particular embodiment described herein. For example, the tape according to the invention could readily comprise more than two separate conducting foils 11 each extending along the tape and adapted to be joined

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. An improved carpet joining tape including an electrical conducting foil extending along said tape and adapted, in use, to be heated by an electric current to melt adhesive on said tape, said foil comprising two or more electrically separated strips extending along said tape, whereby, in use, said strips may be connected in series by bridging members between said strips, thus substantially reducing the amount of electrical current necessary to obtain the desired heating effect.
2. A tape according to claim 1 wherein there is an even number of said strips so that both sides of an electrical current supply may be connected to the tape at the same end with appropriate bridging at one or both ends to provide said series connection.
3. A tape as defined in claim 2 wherein there are two said strips, whereby the electrical current supply is adapted to be connected between the respective strips at one end of said tape and a said bridging member is adapted to be connected between said strips at the other end of said tape, thus avoiding the need for lengthy heavy current leads.
4. A tape as defined in claim 1, 2 or 3 said tape includes a paper type backing member onto which said foil is sewn, a weft of thread to provide transverse strength, and said adhesive which is arranged in longitudinally extending ribs on said foil.
5. An improved carpet joining tape substantially as hereinbefore described with reference to Figs. 1 and 2 of the accompanying drawings.

DATED THIS 8TH DAY OF APRIL 1980

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